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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/863,128	05/22/2001	F. Patrick Doty	SD-8286	9592

7590 04/07/2004

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EXAMINER

SMITH, ZANDRA V

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/863,128	Applicant(s) DOTY ET AL.	
	Examiner Zandra V. Smith	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-20,22-31,33-46 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 35-39 is/are allowed.
- 6) ☒ Claim(s) 1-3,5-20,22-31,33,34 and 40-42 is/are rejected.
- 7) ☒ Claim(s) 43-46 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 8, 10, 12-16, 19, 22, 40-42 are rejected under 35 U.S.C. 102(b) as being anticipated by *Kishimoto (4,093,562)*.

As to **claims 1, 3, and 14-15**, Kishimoto discloses a polymeric composition for manufacture of secondary electron multiplier tubes and a method of manufacture, comprising:

a π -conjugated material, including π -conjugated polymers, (col. 3, lines 40-45) having an electrical resistivity of at least or greater than 10^9 ohm-cm (col. 3, line 50 and col. 5, lines 20-30), wherein an external stress (heating, kneading) is applied to the material (col. 10, lines 26-42).

As to **claims 2 and 22**, Kishimoto discloses everything claimed, as applied above, in addition the π -conjugated material comprises a mixture of π -conjugated materials (col. 3, lines 42-55).

As to **claims 5 and 16**, Kishimoto discloses everything claimed, as applied above, in addition the π -conjugated polymer includes derivative and combinations as claimed (col. 7, lines 22-30).

As to **claims 8 and 19**, Kishimoto discloses everything claimed, as applied above, in addition the π -conjugated polymer material is mixed with organic polymers (col. 3, lines 40-45).

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As to **claim 10**, Kishimoto discloses everything claimed, as applied above, in addition metal is incorporated into the π -conjugated polymer structure (col. 3, line 47).

As to **claim 12**, Kishimoto discloses a polymeric composition for manufacture of secondary electron multiplier tubes and a method of manufacture, comprising:

electrodes (2, col. 3, line 62);

a π -conjugated material, including π -conjugated polymers, (col. 3, lines 40-45) having an electrical resistivity of at least or greater than 10^9 ohm-cm, between the electrodes (col. 3, line 50 and col. 5, lines 20-30); and

a power supply (4, col. 3, line 63).

As to **claim 13**, Kishimoto discloses everything claimed, as applied above, in addition the electrodes are metal conducting oxides (col. 3, lines 45-50).

As to **claims 40-42**, Kishimoto discloses a polymeric composition for manufacture of secondary electron multiplier tubes and a method of manufacture, comprising:

electrodes (2, col. 3, line 62);

a π -conjugated material, including π -conjugated polymers, (col. 3, lines 40-45), between the electrodes (col. 3, line 50 and col. 5, lines 20-30) wherein the electrodes and polymer is rolled up along their lengths to form a cylindrical sheet (see fig. 1); and

a power supply (4, col. 3, line 63 and col. 8, lines 1-15).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24-29 and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Friend et al.* (5,523,555) in view of *Kishimoto* (4,093,562).

As to **claim 24**, Friend discloses a photodetector device having a semiconductive conjugated polymer, comprising:

- electrodes (4,8, col. 9, lines 5-10);
- a π -conjugated polymer (6) between the electrodes; and
- a power supply means (18) (col. 2, lines 50-60 and col. 4, lines 10-20).

Friend differs from the claimed invention in that the details of the π -conjugated polymer are not provided, however the provision of a π -conjugated polymer including π -conjugated polymers, (col. 3, lines 40-45) having an electrical resistivity of at least or greater than 10^9 ohm-cm (col. 3, line 50 and col. 5, lines 20-30), wherein an external stress (heating, kneading) is applied to the material (col. 10, lines 26-42) is well known as taught by Kishimoto. Kishimoto provides, see above. It would have been obvious to one having ordinary skill in the art at the time of invention to include the particular π -conjugated polymer to provide a detector with excellent moldability and flexibility and to provide a composition with an electrical resistivity that is less dependent on temperature (Kishimoto, col. 2, lines 54-60).

As to **claim 25**, Friend and Kishimoto disclose everything claimed, as applied above, in addition the electrodes are composed of metals (col. 4, lines 41-45).

As to **claims 26 and 29**, Friend and Kishimoto disclose everything claimed, as applied above, in addition the π -conjugated polymer includes polyaromatic hydrocarbons, including anthracene or naphthalene (col. 5, lines 50-65).

As to **claims 27-28**, Friend and Kishimoto disclose everything claimed, as applied above, in addition the π -conjugated polymer is selected from polymer derivative comprising poly(phenylenevinylene) (col. 7, lines 10-15).

As to **claims 33-34**, Friend and Kishimoto disclose everything claimed, as applied above, in addition the π -conjugated polymer comprises aluminum (col. 4, lines 45-50).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Friend et al.* (5,523,555) and *Kishimoto* (4,093,562) in view of *Heeger et al.* (5,504,323).

As to **claims 30-31**, Friend and Kishimoto disclose everything claimed, as applied above, with the exception of the π -conjugated polymer mixed with organic polymers, however to do so is well known as taught by Heeger. Heeger discloses a dual function conducting polymer diode that includes the mixture of π -conjugated polymers with organic polystyrene (col. 5, line 60). It would have been obvious to one having ordinary skill in the art at the time of invention to mix the π -conjugated polymer with organic polystyrene since polystyrene is a carrier polymer and will improve the durability and/or processibility of the π -conjugated polymer.

Claims 9 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kishimoto* (4,093,562) in view of *Heeger et al.* (5,504,323).

As to **claims 9 and 20**, Friend discloses everything claimed, as applied above, with the exception of the π -conjugated polymer mixed with organic polymers, however to do so is well known as taught by Heeger. Heeger discloses a dual function conducting polymer diode that includes the mixture of π -conjugated polymers with organic polystyrene (col. 5, line 60). It would have been obvious to one having ordinary skill in the art at the time of invention to mix the π -conjugated polymer with organic polystyrene since polystyrene is a carrier polymer and will improve the durability and/or processibility of the π -conjugated polymer.

Claims 6-7, 11, 17-18 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kishimoto (4,093,562)* in view of *Friend et al. (5,523,555)*.

As to **claim 6 and 17**, Kishimoto discloses everything claimed, as applied above, in addition the π -conjugated polymer is composed of polymer derivatives. Kishimoto fails to specially disclose the derivative, however to do so is well known as taught by Friend. Friend discloses the use of poly(phenylenevinylene) (col. 7, lines 10-15). It would have been obvious to one having ordinary skill in the art at the time of invention to use a polymer derivative of poly(phenylenevinylene) because poly(phenylenevinylene) the films produces show little reaction with oxygen at room temperature and are stable out of air at high temperatures.

As to **claims 7 and 18**, Kishimoto discloses everything claimed, as applied above, with the exception of polyaromatic hydrocarbons, however to do so is well known as taught by Friend. Friend discloses the use of polyaromatic hydrocarbons (col. 5, line 65-68). It would have been obvious to one having ordinary skill in the art at the time of invention to provide a polymer with desired features to produce the desired electro luminescent effects.

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As to **claim 11 and 23**, Kishimoto discloses everything claimed, as applied above, with the exception of the particular metal, however to do so is well known as taught by Friend. Friend discloses the use of aluminum in the polymer (col. 4, lines 45-50). It would have been obvious to one having ordinary skill in the art at the time of invention to include aluminum to provide conductivity.

Allowable Subject Matter

Claims 35-39 are allowable over the prior art of record.

Claims 43-46 are objected to as being dependent on a rejected base claim.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record, taken alone or in combination, fails to disclose or render obvious, carboxylate salts, boronic acid, an array of wires embedded in a π -conjugated material, the array comprising a first set of parallel wires intersecting orthogonally with a second set of parallel spaced apart wires, or the π -conjugated polymer having a C:H ratio and density equal to that of human skin, in combination with the rest of the limitations of the claims.

Response to Arguments

Applicant's arguments filed 29 January 2004 have been fully considered but they are not persuasive. Applicant's representative argues that Kishimoto fails to provide the structure of claim 40, specifically that the electrodes are disposed at the ends of a tube and not an integral part, as claimed. However the device of Kishimoto is kneaded and rolled (col. 1, lines 46-55 and col. 10, lines 26-40) into the tube shape, which is cylindrical. As to the electrodes being an integral part, it is not specifically pointed out in the claim, however the electrodes are an "integral" part. The

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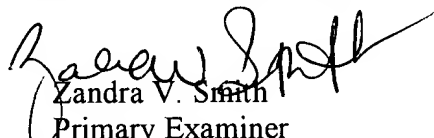
claim includes a polymer disposed between electrodes and the combination rolled to produce a cylindrical shape, which is provided by Kishimoto.

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zandra V. Smith whose telephone number is (571) 272-2429. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Zandra V. Smith
Primary Examiner
Art Unit 2877

April 1, 2004